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KEY TO DIPLLOTAXIS OF BAJA CALIFORNIA

(Coleoptera:Scarabaeidae)

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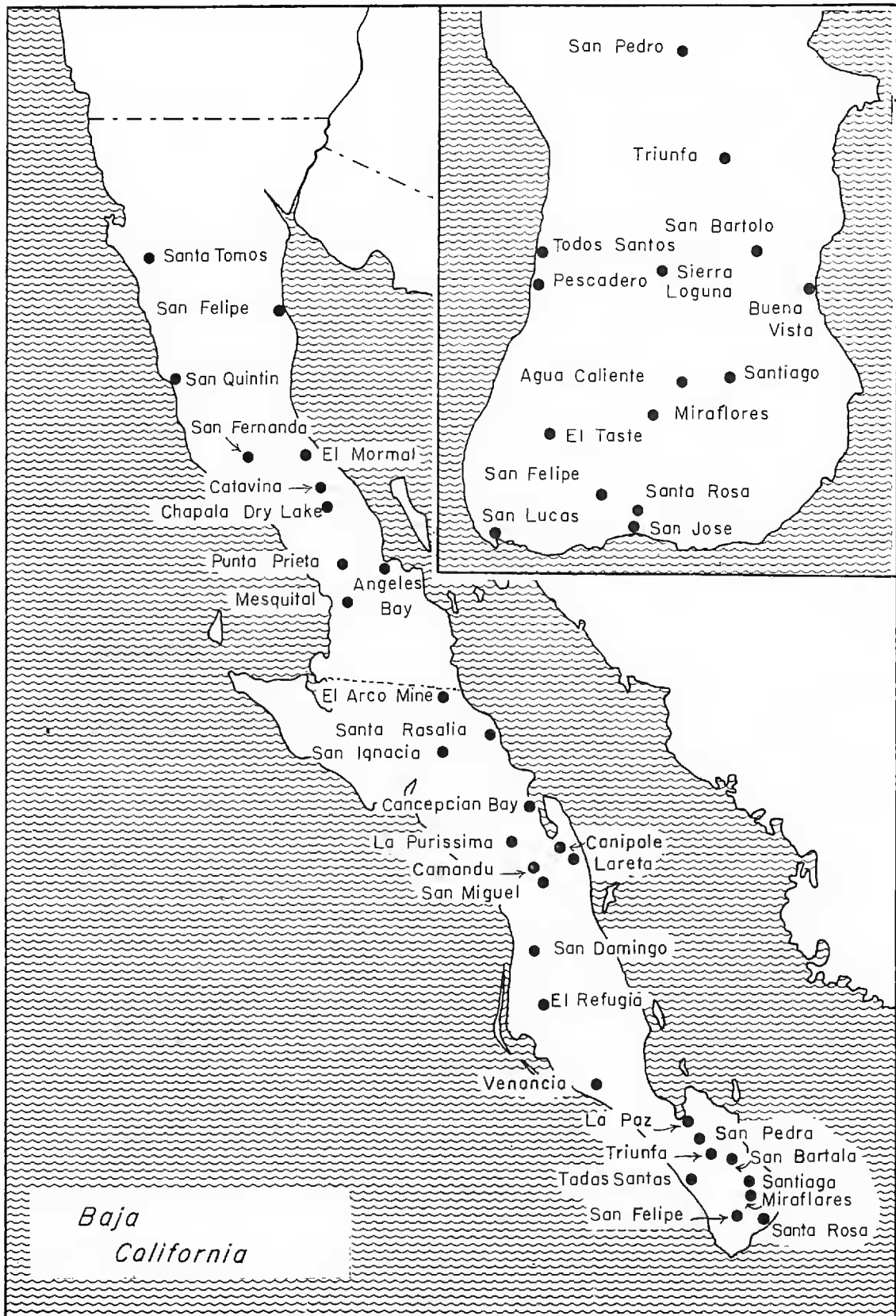
American Museum of Natural History, New York

Fifteen of the 220 species of this New World genus of scarab beetles occur in the peninsula of Baja California, Mexico (fig. 1). They are included in my recent monographic study (Vaurie, 1958, 1960), but are presented here separately because I believe that regional keys are useful in a genus as large and as difficult as this one.

These species, moreover, are of special interest because they are highly endemic, nine of the 15 being restricted to Baja California (*academia*, *anthracina*, *australis*, *confusa*, *flexa*, *mascula*, *parpolita*, *polita*, *punctulata*), and *missionaria* virtually so, as it is found sparingly outside of Mexico only just across the border in San Diego County, California. Four of the above have not been recorded from north of the Cape region, and two not north of the southern territory of the peninsula. It is interesting, secondly, that none of the "hairy" species is represented in Baja California (species with dorsal pubescence on the elytra and/or on the pronotum), all the species being glabrous except for six that have the clypeus alone hairy. Thirdly, one of the most unusual species of the genus occurs exclusively in Baja California, a species (*anthracina*) in which males are unique in possessing a huge inner claw on the front tarsus that is twice the size of the outer claw.

Of the remaining five species, one (*fimbriata*) occurs also in California, and four (*knausii*, *moerens*, *pacata*, *subangulata*) occur in California as well as in a number of the other southwestern states; *subangulata*, which has a larger range, is found also in the northwestern states and in Canada and, at the other extreme, in northern Chihuahua, Mexico. However, *fimbriata*, *knausii*, and *pacata* descend into Baja California in the most northern portion only. The species *moerens* is apparently polytypic, the nominate race occurring in the western United States, Sonora, and the northern half of the peninsula, and *moerens peninsularis* in the southern part from Concepcion Bay to the Cape region. These five species are in the *frondicola* and *moerens* species groups, whereas the endemic species are in the *planidens*, *punctulata*, and *trapezifera*

groups, but all these groups contain species found also outside of the region, there being about 37 groups in the genus. Of the six species of the *trapezifera* group in Baja California (*academia*, *confusa*, *flexa*, *mascula*, *parpolita*, *polita*), which are often diffi-



EXPLANATION OF FIGURES

Fig. 1, Localities where *Diplotaxis* have been collected.

cult to identify without examination of the male genitalia, two (*mascula* and *parpolita*) are known so far from males only.

Nearly twice as many species are recorded from the state of Sonora across the gulf, but they are not restricted to Sonora (with the possible exception of *D. obregon*, known from two specimens only). Sonora, of course, receives the majority of its species from Arizona, which has about 55 species recorded, whereas only four Arizona species reach Baja California. The same four occur in California and Baja California (California has about 20 species of *Diplotaxis*). These estimates of the number of species in various states and of the geographic ranges are based on a total of some 50,000 specimens examined, 3,200 of which were from Baja California. Except for some 1000 *subangulata* from Santo Tomas, the Baja California material is from the collection of the California Academy of Sciences in San Francisco.

Although there are many secondary sexual characters present throughout the genus (see Vaurie, 1958, p. 278; 1960, p. 178), and although sexual dimorphism is strong and constant in a few species, there is no single external character that distinguishes the sexes for all species. In general, and in the majority of the Baja California species, males differ from females in one or more of the following ways: by having a longer and narrower first segment on the hind tarsus (as long as, or longer than, the longest spur on the tibia), narrower hind femora, a shorter fifth segment of the abdomen (shorter at middle than the fourth, see figs. 2, 3), and a broader, more transversely oval, not at all pointed, pygidium. In Baja California, males of the *trapezifera* group have the clypeus shaped differently from that of females, it being either more emarginate in front in males or having sharper, angulate, not rounded, lateral angles.

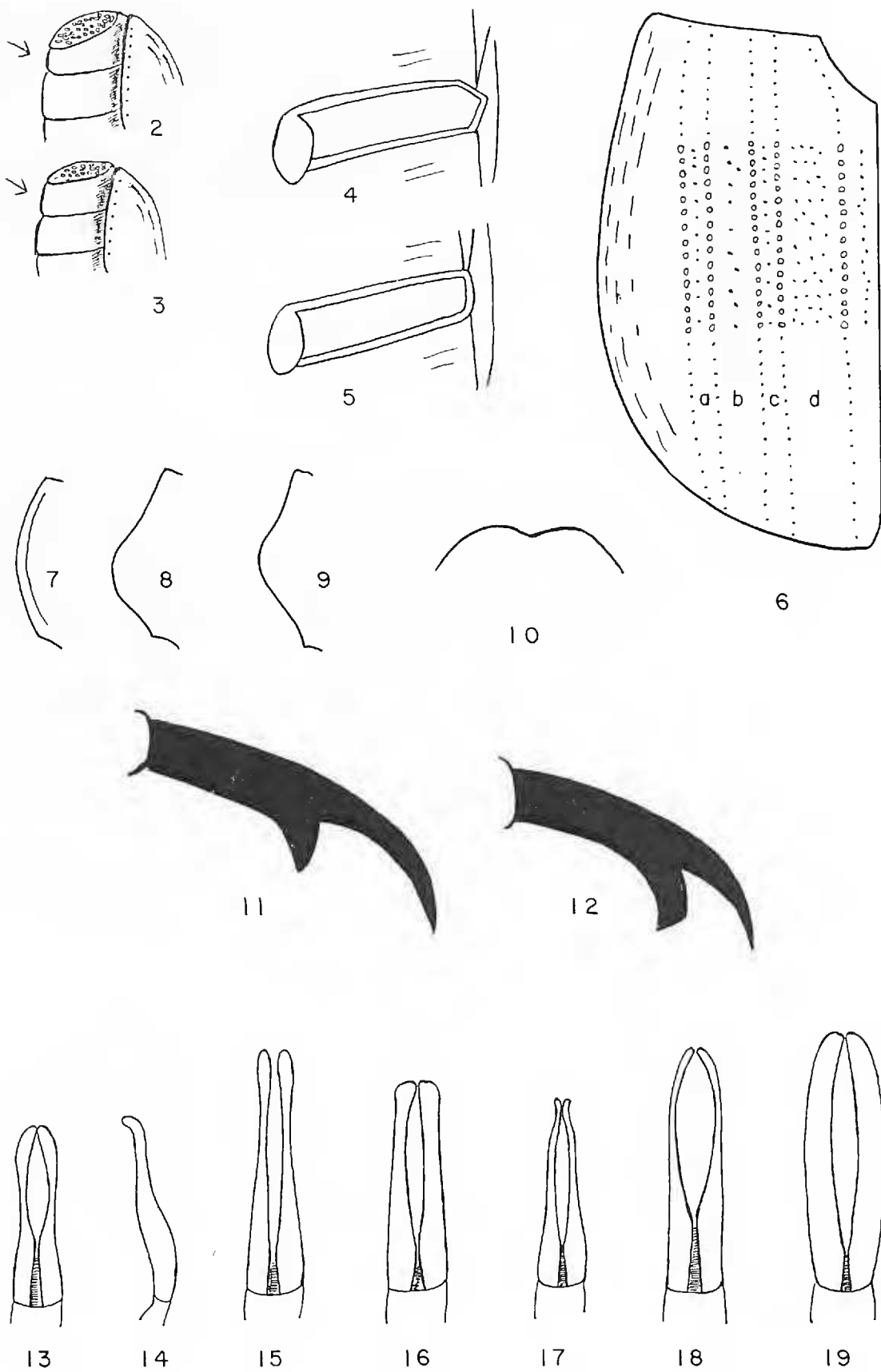
KEY TO SPECIES OF *Diplotaxis* IN BAJA CALIFORNIA

1. Labrum deeply cleft at middle, forming two lobes..... 2
 Labrum flat or concave, not forming lobes..... 3
2. Front of head at middle deeply, triangularly impressed; extreme
 northern part.....*knausii* Schaeffer
 Front of head not impressed; southern territory.....
 *moerens peninsularis* Fall
3. Clypeus with disc (viewed best in profile) with erect hairs (hairs
 may be worn except at front edge); lateral angles of clypeus
 angulate in males 4
 Clypeus without discal hairs, angles and front usually rounded.....10

4. Front of head directly behind clypeus triangularly impressed or concave at middle; occurring throughout peninsula.....5
 Front of head slightly convex to clypeus or with transverse "frown" over clypeus; restricted to Cape region (except for *academia*).... 6
5. Marginal hairs of elytra (in fresh specimens) distinctly longer than scutellum; pronotal sides bulging abruptly at or behind middle (fig. 9); elytral punctuation coarse, dense, deep; male genitalia as in fig. 15; San Fernando in north, south to Cape region....*confusa* fall
 Marginal hairs of elytra not much longer than width of a sutural interval; pronotal sides strongly, but usually evenly arcuate; elytral punctuation shallow, rather sparse, fine; male genitalia as in figs. 13, 14; San Quintin in north, south to Cape region*academia* Vaurie (in part)
6. Usually less than 7 mm. long and pale; elytra rather sparsely punctate, second interval (fig. 6b) with one row, often irregular, of punctures*academia* Vaurie (in part)
 Usually at least 7 mm. long (to 10 mm.) and darker; elytra crowded with punctures, second interval usually with two rows of confluent punctures 7
7. Pronotum (viewed from above) with lateral margin at base interrupted and partially concealed because of bending down and under of hind angle; hind coxal plate with sides angulate, angles fitting over edge of elytral margin (fig. 4); male genitalia as in fig. 18.....*flexa* Vaurie
 Pronotum with lateral margin at base readily visible at hind angle; hind coxal plate with sides rounded or truncate (fig. 5)..... 8
8. Genitalia of male with basal piece of same length as lateral lobes, lobes very wide (fig. 19, but length of basal piece not shown)*parpolita* Vaurie
 Genitalia of male with basal piece longer than lobes..... 9
9. Genitalia of male as in fig. 16.....*polita* Fall
 Genitalia of male as in figs. 14, 17.....*mascula* Vaurie
10. Sides of pronotum gently or scarcely arcuate and/or broadly impressed along edge, especially toward base (fig. 7).....11
 Sides of pronotum strongly arcuate or sinuate and bulging at or behind middle (fig. 8), not broadly impressed along edge.....15
11. Elytral surface between large punctures covered densely with tiny punctulations; size from 13 to 17 mm.; Comondu in southern territory south to Cape region.....*punctulata* Horn
 Elytral surface virtually impunctate between large punctures; usually smaller than 13 mm.12

EXPLANATION OF FIGURES

Figs. 2-19, Some anatomical characters of *Diplotaxis*. Fig. 2, abdomen of male. Fig. 3, abdomen of female. Figs. 4, 5, angulate and truncate hind coxal plate. Fig. 6, left elytron, a and c, striae; b, second interval; d, first interval. Figs. 7-9, pronotal margins. Fig. 10, bisinuate clypeus. Fig. 11,



tarsal claw toothed near middle. Fig. 12, tarsal claw cleft subapically. Figs. 13-19, male genitalia of *trapezifera* group. 13, *D. academia*, dorsal view; 14, *D. academia* and *D. mascula*, profile; 15, *D. confusa*; 16, *D. polita*; 17, *D. mascula*; 18, *D. flexa*; 19, *D. parpolita*.

12. Marginal hairs of pronotum and elytra short, inconspicuous; clypeus bisinuate (fig. 10); labrum strongly concave throughout; northern border south to San Ignacio.....*moerens moerens* LeConte
Marginal hairs of pronotum and elytra at least as long as scutellum; clypeus truncate or rounded or broadly emarginate; labrum flat or convex, at least in front.....13
13. Tarsal claws with unguis near middle (fig. 11); males with tarsal segments normally hairy; northern quarter.....*fimbriata* Fall
(in part)
Tarsal claws cleft subapically (fig. 12); males with first two or three tarsal segments densely bristly; Punta Prieta in north, south to Cape region.....14
14. Larger (9 to 13 mm.); inner edge of eye flush with front of head; males with inner front claw twice as large as outer....*anthracina* Fall
Smaller (7 to 9 mm.); eyes sunk below level of front of head; males with front claws equal in size.....*australis* Vaurie (in part)
15. Tarsal claws with unguis near middle (fig. 11).....16
Tarsal claws cleft subapically (fig. 12)..... 18
16. Front of head transversely swollen or tumid so that, in profile, it overhangs clypeus; northern border south to El Refugio.....
.....*subangulata* LeConte (in part)
Front of head uniformly convex, not transversely tumid; northern quarter17
17. Last segment of larger (maxillary) palpi distinctly impressed at base; marginal hairs of elytra usually twice as long as scutellum; pronotum coarsely, densely, deeply punctate, its margins evenly arcuate from base to apex (fig. 7); generally longer than 9 mm.....*fimbriata* Fall (in part)
Last segment of maxillary palpi flattened at base, but not impressed; marginal hairs of elytra not or scarcely longer than scutellum; pronotum generally finely, shallowly, sparsely punctate, its margins abruptly bulbous behind middle, thence sinuate to apex (fig. 8); less than 9 mm.....*pacata* Fall
18. Elytra with second interval (fig. 6b) usually with single row of punctures; front of head strongly transversely tumid; males with normally hairy soles on hind tarsus (apex of each segment with 7 to 9 or fewer long bristles); south to El Refugio.....
.....*subangulata* LeConte (in part)
Elytra with second interval usually with double row of punctures; front of head not or but weakly tumid; males with soles of at least basal segment of hind tarsus with so many long bristles that segment beneath is scarcely visible.....19
19. Southern territory (Santa Rosalia to Cape region); clypeus emarginate between blunt prominent angles; each eye nearly one-fourth of width of head across front; males with dense bristles on soles of at least first three segments of all tarsi.....
.....*australis* Vaurie (in part)

Northern part (south to Santa Rosalia); clypeus not or scarcely emarginate between blunt not prominent angles; each eye one-fifth or one-sixth of width of head; males with dense bristles on first, occasionally on second, segment of hind tarsus only.....

.....*missionaria* Vaurie

LITERATURE CITED

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1958. A revision of the genus *Diplotaxis* (Coleoptera, Scarabaeidae, Melolonthinae). Part 1. Bull. Amer. Mus. Nat. Hist. 115:267—396.

1960. [Same title.] Part 2. *Ibid.*, 120:165—433.

INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE

NOTICE OF PROPOSED USE OF PLENARY POWERS IN CERTAIN CASES (A. [N.S.] 57)

In accordance with a decision of the 13th International Congress of Zoology, 1948, public notice is hereby given of the possible use by the International Commission on Zoological Nomenclature of its plenary powers in connection with the following cases, full details of which will be found in *Bulletin of Zoological Nomenclature*, Vol. 20, Part 2 to be published on 11 April 1963.

- (2) Suppression of certain Aphid names of Rafinesque (Insecta, Hemiptera). Z.N.(S.) 327;
- (3) Designation of a type-species for *Mymar* Curtis, 1829 (Insecta, Hymenoptera). Z.N.(S.) 479;
- (5) Validation of *Psylla* Geoffroy, 1762 and suppression of *Chermes* Linnaeus, 1748 (Insecta, Hemiptera). Z.N.(S.) 1515.

Any zoologist who wishes to comment on any of the above cases should do so in writing, and in duplicate, as soon as possible, and in any case before 11 October 1963. Each comment should bear the reference number of the case in question. Comments received early enough will be published in the *Bulletin of Zoological Nomenclature*. Those received too late for publication will, if received before 11 October 1963, be brought to the attention of the Commission at the time of commencement of voting.

All communications on the above subject should be addressed as follows: The Secretary, International Commission on Zoological Nomenclature, c/o British Museum (Natural History), Cromwell Road, London, S.W. 7, England.—W. E. CHINA, *Acting Secretary to the International Commission on Zoological Nomenclature*.